

### **ABSTRACT OF THE DISCLOSURE**

Disclosed is an electro-absorption optical modulator using a semiconductor device. The optical modulator makes use of a change in light absorption caused by displacement of an absorption curve depending on a bias voltage applied to the device. Here, a level of the light absorption depending on the bias voltage is expressed as a transfer function of output light to the applied bias, and the transfer function has a non-linear profile due to a characteristic of a material. Unlike signal modulation of a digital optical communication system, an analog optical transmission system can be subjected to deterioration in performance, because the non-linear characteristic of the transfer function for the optical modulator generates signal distortion when an electrical signal is converted into an optical signal. The typical optical modulator has an absorption layer constituted of quantum wells having the same width. However, the inventive optical modulator has the absorption layer formed by the combination of quantum wells having a width different from each other, thus having excellent linearity.